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Interpretation of Adult Spirometry Using Telemedicine

Spirometry is the diagnostic measurement, as used in pulmonary function testing (PFT), of the volume of air entering and leaving the lungs. Currently, remote clinics mail PFT studies to Walter Reed for interpretation, receiving interpreted results within three to five days.

Our study group enrolled patients over 18 years of age who had been referred for spirometric testing to either Kimbrough Ambulatory Care Center at Ft. Meade, MD or Dewitt Army Community Hospital at Ft. Belvoir, VA, over a two month time period. The VMAX™ Spirometry System, by SensorMedics, Inc, of Yorba Linda, CA, was used to transmit the resulting reports to the Walter Reed Army Medical Center in Washington, DC. There, the files were received via FTP, reviewed by a pulmonologist, and sent back to the originating site, normally within 48 hours.

We measured efficacy/efficiency of the project based on the following metrics:

1. Ability to interpret all spirometries performed at the outlying hospital.
2. Ability to interpret studies in a timely manner.
3. Ability to provide timely feedback to technicians and improve subsequent test performance.

We encountered some initial difficulties due to glitches within the Army communications network and the lack of automated notification of new consult requests. These issues have been addressed, and the later performance of the system suggests great potential for AMEDD-wide distribution to other military healthcare systems.

The application of telemedicine technology offers a new way of expediting this process, offering potential benefits in accuracy, standardization and turn-around time, while providing technicians with prompt feedback regarding technical performance. Using our tele-PFT system, technicians at remote clinics can electronically forward spirometry test data to Walter Reed pulmonologists for faster interpretation and diagnosis.

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